RECOMBINANT DNA USE PERMIT APPLICATION

Presentation to the
Cambridge Biosafety Committee
April 2019

Alison Mungenast PhD, Senior Scientist, Biosafety Officer, IBC Chairperson
Krista Carwardine, Associate Director, Site Operations & EH&S

0

Eisai Center for Genetics Guided Dementia Discovery

G2D2 mission

Deliver breakthrough therapeutics that enhance *human healthcare* by leveraging the power of human genetics, data sciences and precision chemistry

1

G2D2

- At G2D2 our goal is to accelerate drug discovery and development using human genetics to drive multi-disciplinary team-based progress towards medicines that address unmet patient needs.
- The predominant research focus of G2D2 will be Immunodementia: a new concept for next-generation therapeutics for Alzheimer's disease and other dementias that targets immune/inflammation-related mechanisms.
- This research focus builds upon Eisai's considerable experience in and commitment to neurology research, and to our human health care mission which recognizes the profound impact of Alzheimer's and related dementia on patients and their caregivers.

2

G2D2

Scientific Management:

Nadeem Sarwar – President
Frank Fang – Deputy President and Head, Precision Chemistry
Sally Ishizaka – Senior Director, Immunodementia
John Wang – Executive Director, Discovery Sciences
Janna Hutz – Senior Director, Data Science
Osamu Kikuchi – Senior Director, Operations

The new G2D2 center supports Eisai's overall mission:

As part of Eisai's long-term commitment to Alzheimer's disease research and therapeutics, the work at G2D2 will focus upon the control of neuroinflammation by exploiting human genetic data, precision chemistry approaches, and dual expertise in neuroscience and immunology.

3

G2D2

At G2D2:

Recombinant DNA research is key to discovering the functional consequences of human genetic variants that are shown to increase or decrease the risk of Alzheimer's disease and other dementias. By expressing these proteins in cells and performing various assays, we can determine which proteins might be the next drug target for anti-dementia medications.

Move date scheduled for May 20, 2019. Why move to Cambridge?

Much of Eisai's work depends on collaborations with academic scientists and with other pharma/biotech companies. Moving closer to the biomedical hubs of Cambridge and Boston will facilitate our contributions to dementia research and shorten the path from bench to bedside.

4

G2D2 RESEARCH PLANS

1. Outsource the cloning of genes of interest into expression vectors
   - Using companies such as Genecopoeia, Genewiz, GenScript, etc
   - Plasmid DNA is shipped to G2D2 as purified DNA, avoiding the need to grow bacterial cultures
   - Tool viruses such as lentivirus and AAV are also purchased from third parties, and shipped to G2D2 as purified, validated replication-incompetent virus

2. Plasmid DNA is transfected/electroporated into human cell lines for the purposes of:
   - Transiently expressing proteins for cell-based assays
   - Creation of stable cell lines expressing the protein of interest (genomic insertion)
   - Creation of novel cell lines with targeted gene knock-outs via genome editing (CRISPR)

3. Lentivirus is added to human cell lines for the same purposes as #2

5

RESEARCH FACILITY

Where:

35 Cambridgepark Drive
Only tenant on the 2nd floor

What:

50,000 total sq. ft. office & lab space

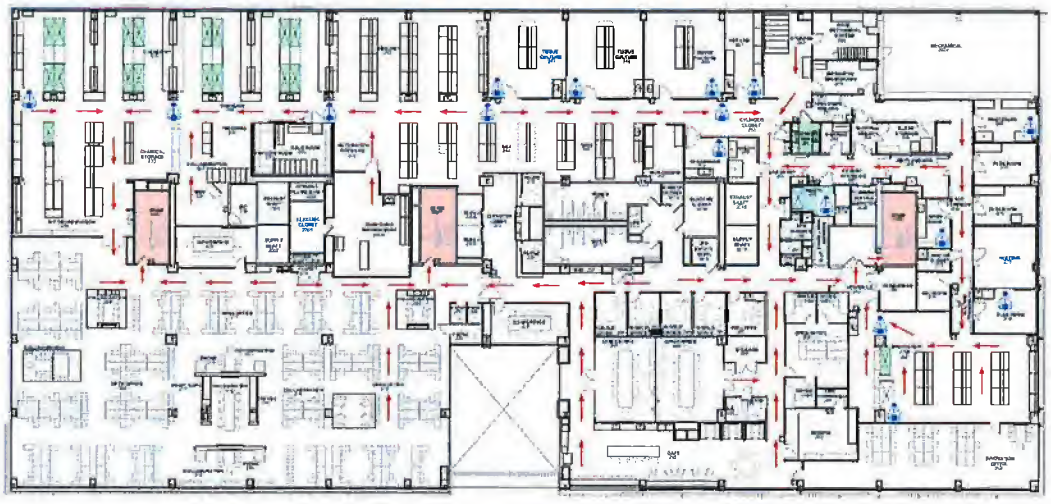
Who:

80 staff members
20 bench biologists

Also – The Eisai Incubator for Neuro Discovery – e-IND
Separate lab and office space for incubating start-ups and collaborations

6

FLOOR PLAN



7